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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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STMICROELECTRONICS, INC. MAIL STATION 2346 1310 ELECTRONICS DRIVE CARROLLTON, TX 75006			RAO, ANAND SHASHIKANT	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/914,171	Applicant(s) HUI ET AL.
	Examiner Andy S. Rao	Art Unit 2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

Status

- 1) Responsive to communication(s) filed on 8/11/08.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2,9,10,15,16,18-21 and 23-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 15,16,18-21,23-25 and 31-36 is/are allowed.
- 6) Claim(s) 1,2,9,10,26,27,29 and 30 is/are rejected.
- 7) Claim(s) 28 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Response to Arguments Request for Reconsideration

1. Applicants' arguments filed on 8/11/08 with respect to claims 1-2, 9-10, 26-27, and 29-30 have been fully considered but they are not persuasive.
2. Claims 1-2, 9-10, 26-27, and 29-30 are remain under 35 U.S.C. 103(a) as being unpatentable over Martin et al., (hereinafter referred to as "Martin") in view of Hewlett et al, (hereinafter referred to as "Hewlett"), as was set forth in the Office Action of 4/09/08.
3. The Applicants present five arguments contending the Examiner's pending rejections of claims 1-2, 9-10, 26-27, and 29-30 under 35 U.S.C. 103(a) as being unpatentable over Martin et al., (hereinafter referred to as "Martin") in view of Hewlett et al, (hereinafter referred to as "Hewlett"), as was set forth in the Office Action of 4/09/08. However, after consideration of the arguments presented and further scrutiny of the applied references, the Examiner must respectfully disagree and maintain the rejections for the reasons that follow.

After summarizing the instant invention as recited by the claims (Request for Reconsideration of 8/11/08: page 11, lines 1-12), the Applicants argue that the combination fails to teach or suggest: calculating a ratio between a first and second difference values of differences between pixels of first and second fields, and first and third fields, respectively; comparing the ratio with a threshold; and determining whether the first field is an interlaced field or a progressive field with respect to the third field as in the claims (Request for Reconsideration of 8/11/08: page 11, lines 13-21) buttressing this argument with a summary of the Examiner's rationale in making the combination (Request for Reconsideration of 8/11/08: page 11, lines 22-25; page 12, lines 1-2) along with Applicant's interpretations of the references (Request for

Reconsideration of 8/11/08: page 12, lines 3-24). The Examiner respectfully disagrees. It is noted that Martin discloses that the ratio is generated from its use of difference values (Martin: column 3, lines 30-40: $R = FR(k)/FD(k)$), and that this ratio is used to determine a interlaced/progressive property (Martin: column 3, lines 45-57). Now, we look at Hewlett and its teaching, and take its disclosure of field successive differences as claimed (i.e. T1-B1, and T2-B2) and substitute both of these difference metrics into the Martin equation, such that the Martin equation becomes $R=FR(k_{T1-B2})/FD(k_{T2-B2})$, and this expression which is the basis of the combination. As to the Applicants' remarks alleging that Hewlett's disclosure of a comparison operation not computing any ratio, the Examiner would note the following. In Hewlett, a comparison of values yields three conditions:

$$T1-B1 \geq T2-B2 \quad (\text{greater than})$$

$$T1-B1 \leq T2-B2 \quad (\text{less than})$$

$$T1-B1 = T2-B2 \quad (\text>equals})$$

However, a simple mathematical transform (i.e. dividing the each side of each expression by $(T2-B2)$) yields the following:

$$(T1-B1)/(T2-B2) \geq 1 \quad (\text{greater than})$$

$$(T1-B1)/(T2-B2) \leq 1 \quad (\text{less than})$$

$$(T1-B1)/(T2-B2) = 1 \quad (\text{equals})$$

So, this clearly establishes the fact that the comparing step does arrive at a unitary ratio (i.e. 1 to 1), and severely cripples the Applicants argument at “no ratios” are computed. Hewlett arrives at a ratio using difference values (i.e. the difference values in the claim), and uses these ratios to establish the 0/1 field designation discussed (Hewlett: column 3, lines 55-65). As such, since Hewlett discloses the manipulation of field pair differences as in the claims for computation of ratios, one of ordinary skill in the art would take those field pair difference metrics and use them in the specific ratio equation of Martin. Hewlett provides the field pair differences of the claims and Martin provides the specific ratio of the claim. The combination would arrive at the recited expression of the claim.

Secondly, the Applicants argue that even if Hewlett had taught one to compute a ratio, one of ordinary skill in the art would not be motivated to use the Hewlett teaching with Martin's method of determining whether two fields are interlaced because that step in Martin is an intermediate step, and instead the teaching of Hewlett would go towards the total replacement of Martin's method with the Hewlett method (Request for Reconsideration of 8/11/08: page 12, lines 25-27; page 13, lines 1-6). The Examiner respectfully disagrees. It is noted that the Martin method is also an intermediary process occurring prior to the scene change detection, encoding, and transmission processes (Martin: column 3, lines 57-67; column 4, lines 1-5). So in essence, the Examiner asserts that since both methods/steps are *intermediate processes*, and that both references are directed to detecting *repeated fields in film to video conversion* (Martin: column 1, lines 20-28 and Hewlett: column 1, lines 20-30), one of ordinary skill in the art would be strongly compelled to consider if the teachings of the secondary Hewlett reference are relevant to the teachings of the primary Martin reference. The Examiner notes that ***based on these two***

factors, and upon a thorough reading and understanding of both references, one of ordinary skill in the art would look to incorporate the use of field pair differences as shown by Hewlett as an improvement over frame/strip differences of the Martin in order to generate more accurate scene cut generation/detection and implementation (Hewlett: column 4, lines 5-15; column 4, lines 43-67; column 5, lines 1-10), a teaching which is lacking in the primary reference, but which would augment the field grouping decision of the primary reference (Martin: column 5, lines 5-15). The Examiner would further point out that this combination represents one rationale for arriving at a conclusion of obviousness as recently established by case law: the simple substitution of the field pair differences of Hewlett for the frame/strip differences of Martin in order to compute the ratio of Martin and obtain predictable results that would provide a reliable metric for scene cut detection, *KSR International CO. v. Teleflex Inc.*, (82 USPQ2d 1385, 1395-1397, 2007). Accordingly, based on the discussion above, the Examiner maintains that the combination is proper.

The Applicant argues that the Examiner's assertion that Hewlett discloses calculating a ratio "...in order to get a more accurate measurement of characteristics of a video sequence for determining whether two fields of a video sequence are interlaced or progressive..." is not supported by the reference and that the reference is simply directed towards simply to find and delete repeated fields for video to film conversion (Request for Reconsideration of 8/11/08: page 13, lines 7-15). The Examiner flatly disagrees. The Examiner has already established that scene cuts are detected, and said scene cuts are ***considered characteristics of a video sequence*** (Hewlett: column 5, lines 55-60), features that are not even contemplated by the teaching of the primary reference. The Examiner encourages the Applicant to scour the Martin reference and

point out where the scene changes or even GOP grouping is addressed by the primary reference. Accordingly, the Examiner maintains that the "...more accurate measurement of characteristics of a video sequence..." is supported by the secondary reference.

Furthermore, the Applicants argue that the Martin-Hewlett combination fails to disclose "...verifying whether a scene-change has occurred before performing said calculating steps, wherein if said step of verifying reveals that a scene-change has occurred..." as in the claim (Request for Reconsideration of 8/11/08: page 13, lines 16-30), because Hewlett discloses scene cut detection after the steps and supports this argument based on Applicant's summary of the primary reference (Request for Reconsideration of 8/11/08: page 14, lines 1-7). The Examiner respectfully disagrees. While the Applicant would believe that having an alternative sequence of steps would distinguish claim 27 of the instant invention over the Martin-Hewlett combination, the Examiner would note that this difference represents nothing more than a mere shift in the location of parts (steps), an modification which the courts have repeated determined as being both obvious and well within the purview of one of ordinary skill in the art and therefore is remains unpatentable, *In re Japiske*, 86 USPQ 70 (CCPA 1950). Such an obvious modification would be implementable by one of ordinary skill in the art because Martin discloses the shifting of scene change detection control signal generation by means of parallel processing (Martin: column 5, lines 60-67). Accordingly, the Examiner would assert that the Martin-Hewlett combination, as further modified to shift the scene cut detection process prior to repeat field excising as established by case, would have all of the features of claim 27.

Lastly, the Applicants argue that the Martin-Hewlett combination fails to discloses the "...moving pixel determination..." of the claim (Request for Reconsideration of 8/11/08: page

14, lines 8-14). The Examiner respectfully disagrees. It is noted that the primary Martin already encompasses the circuitry of the moving pixel determination using the accumulation of the field based strips of differences between a first and second strip of a first field and a first strip of a second field (Martin: column 2, lines 23-65), and that these pixel differences which are accumulated and are to be manipulated by the scene cut detection process of Hewlett. Accordingly, the Examiner maintains that the combination addresses the limitation of "...moving pixel determination..." as in the claims.

Allowable Subject Matter

4. Claims 15-16, 18-21 23-25, and 31-36 are allowed.

The Applicant's arguments directed towards the features in these claims have been considered persuasive with regards to the tertiary Roeder reference. In particular, the Examiner notes that independent claims 15 is directed towards a method for detecting field characteristics of video data and further recites "...a first subtractor receiving a pixel of said first field and a first pixel of said second field and calculating a first pixel difference; a second subtractor receiving said pixel of said first field and a second pixel of said second field and calculating a second pixel difference; and a comparator selecting a smaller pixel difference between said first and second pixel differences, wherein the accumulator means accumulates said smaller pixel difference..." which is a feature that is not anticipated nor obvious over the art of record. Independent claim 18 is directed towards a method for detecting field characteristics of video data and further recites "...a moving pixel counter having inputs connected to said input means and the output of said second field memory, and an output connected to said

interlaced/progressive decision unit, said moving pixel counter counting moving pixels between said second and third fields and to obtain a count value of the moving pixels, wherein said progressive/interlace decision means includes means for comparing said count value of moving pixels with a moving pixel threshold, and means for defining said first and third fields as progressive if said count value of moving pixels is lower than said moving pixel threshold, and for defining said first and third fields as interlaced if said count value of moving pixels is not lower than said moving pixel threshold..." which is a feature that is not anticipated nor obvious over the art of record. Independent claim 23 is directed towards a method for detecting field characteristics of video data and further recites "...calculating pixel differences between the pixel of said first field and two pixels of said second field; selecting a smaller pixel difference between said pixel differences; and accumulating said smaller pixel difference..." which is feature that is not anticipated nor obvious over the art of record. Independent claim 31 is directed towards a method for detecting field characteristics of video data and further recites "...determining whether the pixel count value is less than a moving pixel count threshold; and determining whether the first field is an interlaced field or a progressive field with respect to the third field based on whether the pixel count value is less than the moving pixel count threshold..." which is a feature that is not anticipated nor obvious over the art of record.

Dependent claims 16, 19-21, 24-25, 32-36 are allowed for the reasons concerning the independent claims.

5. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim 27.

Dependent claim 28 is directed a method towards for detecting field characteristics of video data and further recites "...for each of a plurality of sub-blocks of said first and third fields: detecting a moving region by repeating said moving pixel detection for pixels of the sub-block; if the number of interlaced pixels in said sub-block is higher than a region threshold said sub-block is considered interlaced; and, if more than one sub-block is found interlaced, then said first and third fields are considered interlaced..." which are features that are not anticipated nor obvious over the art of record. Accordingly, if claim 28 is amended as indicated above, and finally rejected claims 1-2, 9-10, 26-27, and 29-30 are canceled, the application would be placed in a condition for allowance.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2621

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andy S. Rao
Primary Examiner
Art Unit 2621

asr
/Andy S. Rao/
Primary Examiner, Art Unit 2621
November 21, 2008